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United States Department of Agriculture,  
**FOREST SERVICE.**

GIFFORD PINCHOT, Forester.

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**SILVICAL LEAFLET 26.**

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**FOXTAIL PINE.**

*Pinus balfouriana* Murr.

Foxtail pine forms, with other species, a valuable protective cover near the limits of tree growth in the high mountains of California. It is one of the last trees to disappear at timber line, and is able to endure very unfavorable conditions on exposed rocky slopes. The tree has no commercial value because of its small size and the inaccessible localities in which it grows.

**RANGE AND OCCURRENCE.**

Foxtail pine is confined to California, where it is found at high elevations near the head of the Sacramento River, in the northern Coast Range, and in the southern Sierras.

The tree occupies bare, rocky slopes and the summits of ridges and mountains at from 5,000 to 12,000 feet altitude. Throughout its range it is characteristically a timber line tree.

**CLIMATE.**

Foxtail pine endures great seasonal and daily ranges of temperature, a short growing season, heavy snowfall, moderate spring rainfall, and conditions of drought during the summer. It makes small demands upon moisture.

**ASSOCIATED SPECIES.**

In the lower part of its range it associates with lodgepole pine, red fir, and black hemlock; at a higher level western white pine is a frequent associate, and toward its upper limit it often occurs in open mixture with white-bark pine, or pure in small, irregular, scattered stands. It is usually the only species at timber line.

**HABIT.**

Foxtail pine is a small tree. In its usual habitat on mountain slopes near the timber line it is from 30 to 40 feet high and from 1 to 2 feet in diameter, but in the best situations it will reach a height of 90 feet,

with a tall, straight, tapering trunk 5 feet in diameter. Its crown is broadly pyramidal, with horizontal or ascending rigid branches. Frequently in mature trees some of the upper branches push out far beyond the others and become pendulous and contorted, and give the tree a ragged, irregular form.

The bark on young stems and branches is thin, smooth, and white. On mature trees it is reddish brown, and peels off in thin plates.

#### SOIL AND MOISTURE.

It occurs chiefly on accumulations of broken and disintegrated granite, often very coarse and shallow, which dry out rapidly and are subject to wide variations in temperature.

#### TOLERANCE.

Foxtail pine can endure little shade at any stage of its development, and does not form dense stands, resembling limber, white-bark, and bristle-cone pines in this respect.

#### REPRODUCTION.

Cones are borne in some abundance at middle age and mature the second year. The seeds are winged and adapted for dispersion by the wind. Reproduction is never dense.

